

ABSTRACT OF THE DISCLOSURE

5 Reflector For Directing Front Facet Light to Monitor Diode

A system and process for tuning the PER of an electronic system during and/or after its manufacture includes fixtures that allow for the axial rotation of the polarization-maintaining optical fiber relative to the optical system after the optical fiber has been installed in the system. The degradation in the PER ratio of the optical systems results from mechanical stresses placed on the fiber during the manufacture of the systems. For example, in the case of optical pump manufacturing, the semiconductor laser is installed on a submount. The PM fiber enters a package through a fiber feedthrough in a ferrule and then is secured down onto the submount, such that the endface of the pigtail is held in proximity to the exit facet of the semiconductor laser. In such systems, highly robust fixturing processes are used, typically such as solder bonding, in which the fiber is metallized and solder bonded either directly or indirectly to the submount. Further, solder is typically applied to seal the ferrule around the fiber since these packages must be hermetically sealed to provide for the long-term stable operation. The solder bonding processes can create asymmetries in the residual stress fields applied around the circumference of the fiber after the solder has cooled. These asymmetric stress fields lead to distortions in the stress-induced birefringent medium of the fiber. This results in coupling between the two polarization modes of the PM fiber, and consequently the degradation of the PER of the system from that expected from the separate components, for which the present invention can compensate.